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METHODS OF TESTING READING. I

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Numerous inquiries are continually being made by superintendents, principals, and supervisors concerning methods of testing various phases of reading ability. In previous issues of the *Elementary School Journal*, as well as in other publications, methods have been described which are very suggestive and significant. It is the purpose of this article and the one which will follow to supplement previous contributions by describing in some detail certain rough, general tests which may be readily administered under normal schoolroom conditions, and, in addition, to describe some standard tests in reading which are organized for the purpose of securing more exact results. It is hoped that these articles may prove an additional source of aid to those who are interested in testing reading by objective, impersonal methods. These tests are now being used in the Denver and Grand Rapids surveys in the form in which they are here presented, and they were used with but few modifications in the Cleveland survey.

It goes without saying that each supervisor should select those methods of testing which meet most effectively the conditions under which the tests must be given, and which are best adapted to the means at his disposal. In many cases conditions are such that only those methods can be used by means of which large groups can be tested at once. For such cases the "Preliminary Tests" and the "Uniform Tests" which are described in the following paragraphs may prove suggestive. Frequently a supervisor may wish to make a very careful study of individual pupils or to check the results of the group tests. For such cases the more accurate "Standardized Tests" which will be described in the next article of this series may be used to advantage.

The following paragraphs present the detailed directions which have been prepared for the use of the teachers in Denver and Grand Rapids in the city-wide tests of reading.

TESTS OF READING

GENERAL PURPOSES OF THE READING INVESTIGATION

In order to make a careful study of reading it is necessary to secure certain facts which are not ordinarily noted in the school-room. The following paragraphs suggest some of the more important facts of this type.

1. *Rates of reading.*—All reading proceeds at some rate. Pupils in the same class differ in their rate of reading. Each pupil usually differs in his rate of oral reading and of silent reading. Pupils change in their rate of reading as they go up through the grades. It is desirable that we get some exact facts about these different rates because rate is in itself important. Furthermore, rate is one of the symptoms by which we can readily measure the stage of development of the pupil; and, finally, studies made in many schools show that rate and ability to understand are interdependent.

2. *Reproduction and interpretation.*—The cultivation of the power to reproduce and understand is one of the important aims of most reading-exercises. This power differs greatly in different children, and is affected by the kinds of ideas presented in the reading-matter and by the quality of the teaching. It is more difficult to find out how much children understand and are able to reproduce than to determine the rate of reading. However, investigation must be carried far enough to determine how far the teaching has been effective in cultivating the child's understanding.

When a sufficient body of facts of the kind just outlined has been secured, light should be thrown on the following problems:

1. Differences in the reading ability of pupils within the same grade.
2. The relative ability in reading of a grade in one school as compared with the corresponding grade in another school.
3. The relative ability of a grade as compared with preceding grades and with following grades.
4. Progress through the grades in oral reading and in silent reading.

5. Relative emphasis laid by teachers on oral reading and on silent reading in the various grades.

6. Relative emphasis laid on the mechanics of reading and on the thought-side.

7. Relation of speed and understanding in silent reading.

Measurement as related to instruction.—Special methods will have to be employed to secure the facts which are desired. These methods involve devices for recording facts to be used during the progress of the recitation. It is a fundamental mistake, however, to think of these special recording devices as opposed in any way to the ordinary routine of class work, or to think of them as replacing, for either pupils or teachers, the regular instruction. A recording device is good just in the degree in which it fits into the regular work of the class and at the same time gives a series of accurate results on the particular point concerning which information is sought. Whenever asked to measure speed or power of interpretation the teacher should be sure first of all that the process of measuring does not replace the regular instruction or lessen its value. Have a normal lesson. Be sure in every case that the pupils get out of the exercise just as much instruction as though no recording of facts was going on.

DIRECTIONS FOR PRELIMINARY TESTS

Measuring the rate of oral reading.—The simplest measurement under the ordinary conditions of class work is probably a measurement of the rate of oral reading. This record can be secured in any ordinary reading-exercise as follows: Choose for this exercise one or more selections which the pupils read early in the year. Set aside a reading-period for a great deal of oral reading. Make no previous assignment. The pupils should read as in ordinary reading-lessons without suspecting that their speed of reading is being recorded. Have at hand a sufficient quantity of reading-material so that no two pupils read the same paragraphs.

The teacher will need a reader which can be marked freely with a pencil; also a watch with a second-hand. When a pupil begins reading, note the exact second at which he reads the first word of his selection. Follow the watch carefully, and when exactly sixty

seconds have passed, check the word which the pupil was reading when the minute was up. Let the pupil continue reading without interruption to the end of a paragraph as he would in any reading-exercise. Make whatever comments or ask whatever questions would be asked in an ordinary reading-lesson and then go on to the next pupil. If, during the reading, a pupil hesitates a few seconds because of a difficult word, pronounce the word for him so that he may continue reading.

Be sure that you mark the following points for each member of the class: (a) the particular part read by each pupil; (b) the point at which he began reading; (c) the point which had been reached at the end of sixty seconds. At your earliest convenience count the number of words read by each pupil during the minute. Count "a" and "the" and other short words, each as one word. Record the total number opposite the pupil's name on a record sheet which you will keep for your own use. Do not destroy these records. Keep them on file. They will be valuable for purposes of future comparison.

This type of exercise should be continued for two or three class periods. Usually a teacher who tries to give tests and record facts for the first time finds that she is distracted and inaccurate. Confidence and skill develop very rapidly, however, with practice. Continue the measurements of the rate of oral reading until you feel confident that you can secure the records accurately.

Measuring the rate of silent reading.—It would be possible to proceed as in oral reading, taking the record of each pupil separately, but this is probably unnecessary since the class as a whole can be measured without serious difficulty. Choose a selection similar in difficulty to the one chosen for the oral-reading test and proceed as follows:

See to it that each pupil has a book, pencil, and sheet of paper at hand. Then give the following directions: "Turn to page—[this page should immediately precede the one on which the test reading is to begin]. Keep the book open at this page until you are given further directions. Presently I shall read a part of this page aloud. Each pupil should follow the reading carefully. When I read the last word on the page, turn to the next page and

continue reading silently. Be sure that you turn the page just as I read the last word. Continue reading as rapidly as you can read well until the signal 'Stop' is given. As soon as the signal has been given, close your books and write on your paper the line you were reading at the instant the signal was given. Later I shall ask questions about the story, or I may ask you to write what you remember. Do you understand the directions?" Repeat the directions until you feel sure that each pupil does understand just what he is to do.

As soon as all preliminary arrangements have been made proceed to the reading. Read aloud to the whole class some part of the page immediately preceding that which is to be used for the test. When the last word on the page has been reached, discontinue reading and note the exact time. Let the pupils continue reading according to the directions. When exactly sixty seconds have passed give the signal to stop. See that each pupil closes his book immediately and writes the last line which he read. The pupil will not be able in most cases to report the line in exact form but the teacher can judge by means of the written record how far the pupil has read.

To determine the number of words read per minute proceed as follows: Have the papers collected upon which the pupils wrote the last lines which they read. Count the number of words on the test page of your reading-book, writing after each printed line the total number of words on the page up to that point. Locate the last line read by each pupil. With the aid of the numbers entered at the end of each line, the exact number of words which were read can be determined easily.

Each reading-exercise should be followed by some real instruction. Two methods are suggested below. In the first place, the teacher might question the pupils very carefully as to the content of the story or ask for oral reproductions. Make sure that all read what was reported and that they read without skipping.

The second device is as follows: As soon as the pupils have discontinued reading ask them to reproduce in writing what they read. Give sufficient time for all to finish. The teacher should then read these reports, to determine the care with which the

respective pupils carried on their reading. A teacher can make these papers the basis of many wise criticisms and constructive suggestions to the class as a whole and to special individuals.

Frequently it is desirable to attach a percentage grade to the pupil's reproduction. In such cases proceed as follows: Cross out from the pupil's reproduction all wrong statements, all irrelevant statements, and all repetitions. Count the remaining words. Find the percentage that this number is of the total number of words read by the pupil. Thus if pupil A read 150 words in the minute and correctly reproduce 50 words, his percentage grade would be 33+. Pupils in the second and third grades are handicapped very much in the written reproductions, because of the inability of many to express themselves in writing. Hence any comparisons made between the ability of pupils of the lower and upper grades, when the written reproduction is used, is usually biased in favor of the upper grades because of the writing handicap in the lower grades.

Continue the silent-reading tests until you are confident that you can give them well and until you feel that your pupils respond quickly and accurately to your directions. Do not throw your first records away. Keep them on file for your own use and for future comparisons.

Final records of oral and silent reading.—After you have repeated the oral- and silent-reading tests until you are quite sure you can secure the records without error, choose two selections from your reader which are as nearly equal in difficulty as you can select. Give the one as an oral-reading test and the other as a silent-reading test. Arrange the names of the pupils in the order of achievement in oral reading. The pupils reading the highest number of words should head the list. Enter the names of the pupils and the number of words read per minute orally on the printed record sheet. Without changing the order of the names enter the silent-reading record for each pupil in the second column. Only the records secured in these last two tests should be entered on the record sheet and submitted to the survey committee. All the previous records should be entered on a separate sheet and kept on file for future comparisons and study.

UNIFORM TEST IN SILENT READING

General description.—The preliminary study of reading should have prepared both pupils and teachers to do the uniform test well. This test consists of three reading-selections of varying degrees of difficulty. The simplest, entitled, "How Nat Went Fishing," will be given to pupils of the second, third, and fourth grades. The second, entitled, "Rover and the Sheep," will be given to the fourth, fifth, and sixth grades. The third, entitled, "The Red Squirrel," will be given to the sixth, seventh, and eighth grades. It should be noted that the fourth and sixth grades each read two selections. This is necessary in order to compare the relative difficulty of the selections, and the achievement of the various grades. Fourth- and sixth-grade teachers should bear this point in mind and see to it that their respective grades take the two tests.

The subject-matter of the tests appears on printed folders. The story to be read is within, and the directions for the pupil are on the outside. The things to be measured by this test are speed and ability to reproduce. The test is given in much the same way as the silent-reading tests in the preliminary study.

In administering the test special care should be taken along the following lines: (1) that the pupils do not open their folders when they are passed out; (2) that the pupils read for exactly one minute; (3) that they understand the directions clearly (read these to the pupils until you are confident they understand the directions); (4) that the pupils do not look back to the reading-material after they have begun writing; (5) that the pupils fill the blanks for their names, etc., before handing in the paper.

Require the pupils to use ink in writing if possible. Should this prove an additional handicap in the second and third grades, exceptions may be made to the rule. It should be remembered that the pupil's ability to reproduce is handicapped in many cases in the lower grades by the necessity of writing. It does not seem practicable to give individual tests, hence the speed record is the more reliable measure of a pupil's ability in these grades. However, no opportunity should be lost by the teachers of the second and third grades to ask questions about the subject-matter in order to make sure that the pupils have understood the passage.

Check the results as soon as convenient after the papers are handed in. Count the total number of words read by each pupil and enter the record in the appropriate blank. Read the pupil's reproduction. Cross out all statements not true to fact, all irrelevant statements and all repetitions. Count the remaining words of the reproduction and enter the record in the appropriate blank. Find the percentage grade by dividing the number of words correctly reproduced by the total number of words read. In checking the reproduction a statement should be counted as correct if it reproduces the thought of the story correctly although the exact words of the story are not used. All teachers are urged to use great care in grading these papers. This will greatly facilitate the work of the survey committee in checking the results.

STANDARD TESTS

The tests which have been described should furnish a large quantity of very valuable information concerning reading achievement in the various grades. In order to check these results and to meet any objections which might arise because of their use, standardized tests in reading will be given in a number of schools by people trained for the work. After the results of the preliminary and uniform tests have been examined, certain schools will be selected for special study with the standardized tests. Further announcements will be made later to those schools which will be concerned.

The following form of record sheet is used by the teachers upon which to enter the final records of the rate of oral reading and of silent reading, which are secured in the "Preliminary Tests."

The following selections are used in the "Uniform Tests." The first two are adapted from two readers which are no longer in very wide use and the third is adapted from Burroughs, *Squirrels and Other Fur Bearers*.

HOW NAT WENT FISHING

FOR SECOND, THIRD, AND FOURTH GRADES

Little Nat was left alone for the day with his nurse. His father and mother and brother Tom had gone to the city, and would not be home till night. Nat did not like it when the nurse washed his face; and when she combed his hair he kicked and screamed. Was there ever any little boy so bad?

When nurse went to get a clean frock for him, he ran out of the house. He did not stop until he reached the barn. There the first thing that he saw was Tom's fishing-rod.

"I guess I'll go and catch a fish for supper," said the little boy; "but I'll not give nurse any of it!"

RECORD SHEET OF RATES OF READING IN THE PRELIMINARY TESTS. NUMBER OF WORDS PER MINUTE IN ORAL READING AND IN SILENT READING

Pupil	Oral	Silent	Pupil	Oral	Silent
1.			26.		
2.			27.		
3.			28.		
4.			29.		
5.			30.		
6.			31.		
7.			32.		
8.			33.		
9.			34.		
10.			35.		
11.			36.		
12.			37.		
13.			38.		
14.			39.		
15.			40.		
16.			41.		
17.			42.		
18.			43.		
19.			44.		
20.			45.		
21.			46.		
22.			47.		
23.			48.		
24.			49.		
25.			50.		

Teacher School Grade Date

In a very short time Nat was on his way across the fields. On one shoulder was the long rod, and in his hand was the can of bait which Tom had made ready for himself.

The pond lay behind his father's farm, and near the house of a gentleman named Lee. Little Nat walked very fast until he came to the water, and then he sat down on a stone to untangle his line. At last the line was ready, and Nat began to bait his hook.

Oh, how very bad the worms were! The first twisted itself about so much that it had to be thrown away; the next was dead, and so good for nothing; the third, after much trouble, was put upon the hook. Then the little fisherman ran down the bank and threw his line into the water.

Nat soon felt something jerk at his line. He tried to pull it in; but the hook had caught fast upon a snag, and he could not get it loose. At last he gave a strong jerk; the line broke, and Nat fell into the water.

Poor Nat gave a scream, and then sank out of sight. As good luck would have it, Mr. Lee was walking in his garden, and when he heard the splash and the scream, he jumped over the fence and ran quickly to the edge of the pond. When little Nat rose near the shore, Mr. Lee caught him by the arm and lifted him up on the bank.

Nat was very pale, and his eyes were shut. Mr. Lee carried him into the house, and wrapped him in warm blankets, and cared for him very kindly. In a short time our little hero opened his big blue eyes and looked around.

"I want my mother!" he cried. But he stopped short when he saw Mr. Lee standing by him.

The kind old gentleman smiled. "What is your name, little boy?" he asked; for Mr. Lee had but very lately come to that place, and this was the first time he had seen Nat.

"My name's Nat!" was the answer.

"Well, Nat what?"

"Just Nat; that's all!"

"Then what is your father's name?" asked Mr. Lee, still smiling.

"Why do you tell me so many questions?" said Nat, beginning to cry again. "Let me go to my mother! I don't like to be here."

Mr. Lee gave him a cake. Then he took him in his arms and carried him across the fields to the highroad. On their way they met the nurse.

Oh, Master Nat, what a fright you gave me!" she cried, as she took him in her arms. "Thank you, sir, for bringing him home. I have looked everywhere for him, high and low. Where did you find him?"

Mr. Lee told her. But her fright did not trouble Nat.

That evening Nat sat on his father's knee and told all about what had happened to him when he went fishing.

"But, Tom," he cried, as he thought of it for the first time, "I forgot to bring your fishing-rod home!"

"Never mind, my little man," said his mother. "We are glad enough to get our boy home. Now ride up to bed on your papa's shoulder!"

ROVER AND THE SHEEP

FOR FOURTH, FIFTH, AND SIXTH GRADES

Sandy's father was a poor man who had charge of a large flock of sheep. In summer he led them from one feeding-place to another over the high hills. Often he was away for many days at a time. In winter the sheep were kept near the cottage and fed with food which had been laid up for them in the autumn. The sheep did not belong to Sandy's father, but he took the best possible care of them.

One day when he came home from the hills he said: "We must not let Rover, our dog, be idle all his life. He must learn to do something useful. I shall take him to the hills in the morning and teach him to look after the sheep. He will be a great help to me, and I will be a good master to him."

So the next morning Rover started off with his master, looking very proud and happy. At first it was hard to make the dog take care of the sheep in the right way. He thought it was great fun to run after them and bark at their heels, but he did not know when to bark and when to be quiet. However, he did his best to learn, and when the shepherd went home he said that Rover would make a very useful dog.

In a few weeks the snow began to fall and it was plesaaant to sit round the fire and watch the great logs crackling on the hearth. They were all very happy at the cottage and Rover was sure that he had the best home in the world.

One bitterly cold night the wind blew in great gusts. In some way the door of the sheep-shed blew open and in the morning not one of the sheep could be seen. The poor things were so tired of being shut up that they had wandered off in the cold.

When the shepherd missed his sheep, he was in great trouble.

"Rover, my boy," he said, "the sheep have run away. What whall we do? I wonder if you are wise enough to help me find them."

Rover jumped up quickly and shook himself as if to say, "I am ready!" and then ran to the door. First he ran round and round the sheepfold, smelling with his moist, black nose close to the ground, and looking very wise. Then he ran a little way toward the hills and stood looking back, with one paw in the air. His ears were lifted, his eyes were bright, and he gave a low whine, as if to say, "I think those poor sheep have gone to the hills. Are you coming with me, or shall I go alone?"

Rover trotted off toward the hills and his master followed, but he could not walk fast enough to please the dog.

There was no snow on the ground at first, but before noon it began to fall thick and fast. The day passed and the father was still away; night came and he had not returned.

Sandy and Jessie were very sad, for they could think only of their father and his faithful dog. It was very dangerous to be out on the hills in such weather. Often men were lost in the snow and died from cold and hunger.

At last, after hours of anxious waiting, a welcome footstep was heard and the happy children ran to open the door. Their father came in, shaking the snow from his rough coat. He looked very grave and tired.

THE RED SQUIRREL

FOR SIXTH, SEVENTH, AND EIGHTH GRADES

The red squirrel is more common and less dignified than the gray, and is oftener guilty of petty larceny about the barn and grain-fields. He is most abundant in mixed oak, chestnut, and hemlock woods, from which he makes excursions to the fields and orchards. He spins along the tops of the fences, which afford not only convenient lines of communication, but a safe retreat if danger threatens. When he is sitting upright on the topmost rail or on the tallest stake in the fence, his tail conforming to the curve of his back, he is a

pretty sight, and his bright, pert appearance atones for all the mischief he does. At home, in the woods, he is very frolicsome and loquacious. The appearance of anything unusual excites his unbounded mirth and ridicule, if, after contemplating it a moment, he concludes that it is not dangerous.

The red squirrel lays up no stores of food as the provident chipmunk does, but scours about for food in all weathers, feeding upon the seeds in the cones of the hemlock, upon sumac-bobs, and the seeds of frozen apples. I have seen the ground under a wild apple-tree that stood near the wood completely covered with the "chonkings" of the frozen apples. This was the work of the squirrels in getting at the seeds; not an apple had been left, and apparently not a seed had been lost. But the squirrels in this particular locality evidently got pretty hard up before spring, for they developed a new course of food-supply. A young bushy-topped sugar-maple, about forty feet high, was attacked, and more than half denuded of its bark. The object of the squirrels seemed to be to get at the soft, white, mucilaginous substance (cambium layer) between the bark and the wood. The ground was covered with fragments of the bark, and the white, naked stems and branches had been scraped by fine teeth. When the sap starts in the early spring, the squirrels add this to their scanty supplies. They perforate the bark of the branches of the maples with their chisel-like teeth, and suck the sweet liquid as it slowly oozes out. It does not have much value as food, but evidently it helps.

There is one thing the red squirrel knows unerringly that I do not; that is, on which side of the butternut the meat lies. He always gnaws through the shell so as to strike the kernel broadside, and thus easily extract it; while to my eyes there is no external mark or indication, in the form or appearance of the nut by which I can tell whether the edge or the side of the meat is toward me. But examine any number of nuts that the squirrels have rifled, and, as a rule, you will find they always drill through the shell at the one spot where the meat will be most exposed. Occasionally one makes a mistake, but not often. It stands them in hand to know, and they do know. Doubtless, if butternuts were a main source of my food, and I were compelled to gnaw into them, I should learn, too, on which side my bread was buttered.

For use in the tests the selections are printed in the form of folders. A reproduction of the front page of the folder for use in the second, third, and fourth grades is given below. The story appears on the two inside pages of the folder. Space is reserved on the back for the pupil's reproduction.

HOW NAT WENT FISHING

FOR SECOND-, THIRD-, AND FOURTH-GRADE PUPILS

To the teacher: Please read the following directions aloud to the pupils making each point clear:

"When I give the signal to begin open your folder and read the story silently. Read as rapidly as you can read well. Continue

reading until I say 'Stop.' When you hear this signal draw a line under the word you were reading when the signal was given. As soon as you have underlined the word, write all you can remember of the story on the back of the folder. Do not look at the printed story after you have stopped reading. Before handing in your paper write your name, the school, the grade, and your age in the blanks for that purpose. Do you understand?"

Name..... School..... Grade.....
Age..... Nationality.....

Pupil's Record

Number of words read per minute.....
Number of words correctly reproduced.....
Percentage grade for reproduction.....
Corrected by.....

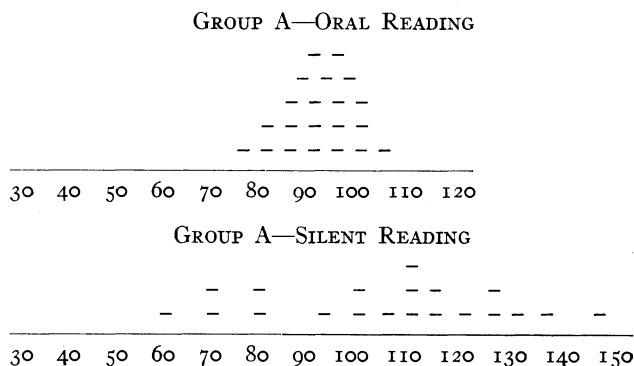
Teacher's Signature

It seems advisable in an article of this kind to include some directions for working up the results and a few suggestions concerning their interpretation. If each school has chosen its own selections for the "Preliminary Tests," the final results are valuable chiefly for comparisons within a given class. If the supervisor can arrange for the use of the same selections in the respective grades of several schools, inter-class comparisons can be made. This latter plan should be followed whenever possible.

If the entries are made on the record sheet according to directions, they appear in the order of the rate of oral reading. This method of recording the facts enables the teacher to determine quickly for oral reading the total range of rates and the median, or the rate of the middle pupil in the class. The same facts can be easily and quickly determined for silent reading. When these facts for several schools are arranged in a table some interesting and significant comparisons are possible. The median rate in oral reading for one school can be compared with the median rate for other schools. Similar comparisons can be made for the rate of silent reading and for the highest and lowest rates of each class. Those who wish to compute averages, deviations, etc., have abundant opportunity here to make other types of comparisons.

Graphical methods of presenting the facts are frequently of very great service in securing an accurate picture of a class. The following simple diagrams can be easily made for each class, and their

use has proved very effective in making analyses of class conditions, in comparing rates of oral reading and of silent reading for a given class, and in making inter-class comparisons whenever such comparisons were desirable and valid.



(Distances along the base lines represent the number of words read per minute. The entries in the diagram represent the number of pupils reading at the various rates. Thus in the diagram for oral reading one pupil read between 60 and 64 words in a minute and three pupils read between 65 and 69 words in a minute.)

Some very interesting facts will be revealed by the tables and diagrams described above. Some classes will form compact groups with relation to their rate of oral reading as shown in the diagram. We may legitimately expect such a distribution in oral reading for a well-classified group, since people tend naturally to speak at about the same rate, and since the usual class instruction encourages some adopted rate of oral reading. There are many exceptions, of course, to the general rule. If some pupils are found who read at a rate much higher or lower than the majority of the class, special study should be made of these cases. The work may be too hard or too easy for them, they may have speech defects which need attention, their eyesight may be poor, they may have an unusually rapid rate of speaking which should be gradually reduced, or there may be other types of help of which they stand in need. Expert teaching and supervision involve the use of methods which will locate pupils who are in need of help. Objective tests are proving of great help in discovering such pupils.

When comparisons can be made legitimately between different classes in the same grade, the tables will reveal the relative rank of

each class. Again it is recommended that intensive study be made of special cases. The quality of the teaching may be unusually poor or good, the reading-material may be too hard or too easy, or it may not be adapted to the interests of the pupils, social or economic factors may be imposing handicaps on some groups, or perhaps the quality of the teaching in the preceding grade may be questionable. Whatever the significant cause may be it should be detected and helpful measures adopted.

Comparisons made between the rates of oral reading and of silent reading for a given class may reveal the fact that pupils read at about the same rate silently as orally. Studies which have been made show that pupils in the second grade and beyond gradually learn to read more rapidly to themselves than aloud. If this condition does not hold for any given class, the validity of the teaching may be questioned. Some teachers give very little opportunity for silent reading, some seldom, if ever, instruct their pupils in the art of silent reading, and some even retard the tendency toward rapid silent reading by insisting that each pupil pronounce the words to himself as he reads. Such teachers should be discovered and a course of instruction inaugurated for their special benefit. In some cases the pupils of a class will show a wide variation in their rate of silent reading. The rapid pupils should be encouraged, providing they are mastering the thought of what they read, and the slower readers should be given special instruction.

The records of the "Uniform Tests" are particularly valuable for three reasons: namely, they permit of more accurate inter-class comparisons, the progress from one grade to the next can be accurately determined, and the reproduction grade makes these comparisons possible in terms of both speed and quality (meaning ability to reproduce what was read).

To compare the pupils of a given class in both speed and quality, enter the records on a sheet in the order of the rate of silent reading. Find the median rate and the median quality mark. By comparing the individual records with the class medians one can determine whether a given pupil is low or high in either speed or quality, or in both. If a pupil is low in quality, the teacher may well question whether the pupil has been trained effectively to find the leading thoughts as he reads and to relate them, one to another.

If speed is low, the teacher may well question whether the pupil has been trained to work quickly, as well as effectively. Since studies which have been made show that the more rapid readers get the higher-quality grades, as a rule, one may feel fairly certain that he is not doing violence to the quality of the reading when he urges a legitimate increase in the speed. The standing of one class as compared with that of several others may be determined in the manner just outlined for comparing one individual with the other members of his class.

The fact that three grades read a given selection makes it possible to determine the relation of a given grade to the one above and to the one below. Studies which have been made, and which will be reported in connection with the Cleveland survey monographs, show that constant progress in both speed and quality is the rule throughout the grades, speed increasing relatively more rapidly in the lower grades and quality increasing the more rapidly in the upper grades. If a fourth-grade class, therefore, does not equal the standing attained by a third-grade class, the supervisor and teacher have a problem to face. It may be that the third-grade class has made unusual progress. If this be true, it is very important that the causes for this remarkable progress be determined and the same methods applied, if possible, to other groups. It is more likely that the explanation is to be found in the given fourth-grade class. Whatever the difficulty may be, it should be detected, if possible, and remedial measures adopted. The fact that the fourth- and sixth-grade classes read two selections makes it possible to compare the progress in a given school from the second to the eighth grade inclusive.

No attempt has been made in this article to exhaust the possibilities which these records afford. Only a few of the more significant and simpler methods of handling the data have been suggested. In the next issue of the *Elementary School Journal* the "Standard Tests" will be described and the directions for their use presented.